## CONTENTS OF VOLUME 44

No. 1-2 (pp 1-276) published December 1995

No. 3-4 (pp 277-552) published December 1995

(pp 553-692) published January 1996

(pp 693-830) published February 1996

Adamsen AK, Lindhagen J, Ahring BK: Optimization of extracellular xylanase production by Dictyoglomus sp. B1 in continnous culture 325

Andrès Y. MacCordick HJ. Hubert JC: Selective biosorption of thorium ions by an immobilized mycobacterial biomass 271

Archer DB. MacKenzie DA. Ridout MJ: Heterologous protein secretion by Aspergillus niger growing in submerged culture as dispersed or aggregated mycelia (Short contribution) 157

Auburger G, Winter J: Isolation and physiological characterization of Syntrophus buswellii strain GA from a syntrophic benzoate-degrading, strictly anaerobic coculture 241

Auburger G, Winter J: Activation and degradation of benzoate, 3-phenylpropionate and crotonate by Syntrophus buswellii strain GA. Evidence for electron-transport phosphorylation during crotonate respiration 807

Baankreis R, Schalkwijk S van, Alting AC, Exterkate FA: The occurrence of two intracellular oligoendopeptidases in Lactococcus lactis and their significance for peptide conversion in cheese 386

Bamdad M, David L, Grolière CA: Epinigericin toxicity towards Tetrahymena pyriformis GL; changes in cell volume and intracellular pH 206

Berger J-L, Lee BH, Lacroix C: Identification of new enzyme activities of several strains of Thermus species 81

Bestetti G. Bianchi D. Bosetti A. Di Gennaro P. Galli E. Leoni B, Pelizzoni F, Sello G: Bioconversion of substituted naphthalenes to the corresponding 1,2-dihydro-1,2-dihydroxy derivatives. Determination of the regio- and stereochemistry of the oxidation reactions 306

Biebl H, Marten S: Fermentation of glycerol to 1,3-propanediol: use of cosubstrates 15

Bourque D, Pomerleau Y, Groleau D: High-cell-density production of poly-\beta-hydroxybutyrate (PHB) from methanol by Methylbacterium extorquens: production of high-molecular-mass

Breitung J, Bruns-Nagel D, Steinbach K, Kaminski L, Gemsa D, von Löw E: Bioremediation of 2,4,6-trinitrotoluene-contamined soils by two different aerated compost systems 795

Broadbent JR, Kondo JK, Sandine WE: Characteristics of Tn5307 exchange and intergeneric transfer of genes associated with nisin production 139

Bugante EC, Oi S: Methane fermentation of xylan by mesophilic and thermophilic methane sludges (Short contribution)

Bui DM, Kunze I, Förster S, Wartmann T, Horstmann C, Manteuffel R, Kunze G: Cloning and expression of an Arxula adeninivorans glucoamylase gene in Saccharomyces cerevisiae 610

Caldini G. Cenci G. Manenti R. Morozzi G: The ability of an environmental isolate of Pseudomonas fluorescens to utilize chrysene and other four-ring polynuclear aromatic hydrocarbons 225

Castro HP. Teixeira PM, Kirby R: Storage of Lyophilized Cultures of Lactobacillus bulgaricus under different relative humidities and atmospheres 172

Cho H-J, Choi K-P, Yamashita M, Morikawa H, Murooka Y: Introduction and expression of the Streptomyces cholesterol oxidase gene (ChoA), a potent insecticidal protein active against boll weevil larvae, into tobacco cells 133

Cooney MJ, Marison IW, Gulik WM van, Stockar U von: Calorimetric and stoichiometric analysis of growth of Klyveromices fragilis in continuous culture: nitrogen limitation imposed upon carbon-limited growth 643

Coque JJR, Enguita FJ, Cardoza RE, Martín JF, Liras P: Characterization of the cefF gene of Nocardia lactandurans encoding a 3'-methylcephem hydroxylase different from the 7-cephem hydroxylase 605

David PF, Boquien CY, Nakache F, Bassit N, Hartley D, Paraf A. Corrieu G: Ounatification of citrate lyase by enzyme-linked immunosorbent assay for determining the population of Lactococcus lactis subsp. Lactis biovar diacetylactis in pure and mixed cultures 68

Denger K, Schink B: New halo- and thermotolerant fermenting bacteria production surface-active compounds 161

Drici-Cachon Z, Guzzo J, Cavin J-F, Diviès C: Acid tolerance in Leuconostoc oenos. Isolation and characterization of an acidresistant mutant 785

Enkiri F, Hulen C, Legault-Demare J: Hydrophobic adsorption of aromatic compounds on polyurethane foam as carbon source for Pseudomonas growth 539

Fábregas J, Patiño M, Arredondo-Vega BO, Tobar JL, Otero A: Renewal rate and nutrient concentration as tools to modify productivity and biochemical composition of cyclostat cultures of the marine microalga Dunaliella tertiolecta 287

Fang A, Keables P, Demain AL: Unexpected enhancement of βlactam antibiotic formation in Streptomyces clavuligerus by very high concentrations of exogenous lysine

Fascetti E. Todini O: Rhodobacter sphaeroides RV cultivation and hydrogen production in a one- and two-stage chemostat

Field JA, Boelsma F, Baten H, Rulkens WH: Oxidation of anthracene in water/solvent mixtures by the white-rot fungus, Bjerkandera sp. strain BOS55 234

Fierro F, Montenegro E, Gutiérrez S, Martín JF: Mutants blocked in penicillin biosynthesis show a deletion of the entire penicillin gene cluster at a specific site within a conserved hexanucleotide sequence 597

Fishman A, Berk Z, Shoham Y: Large-scale purification of xylanase T-6 88

Fißler J, Kohring GW, Giffhorn F: Enhanced hydrogen production from aromatic acids by immobilized cells of Rhodopseudomonas palustris 43

Galkin A. Kulakova L. Tishkov V. Esaki N. Soda K: Cloning of formate dehydrogenase gene from a methanol-utilizing bacterium Mycobacterium vaccae N10 (Short contribution) 479

Green EM, Stephens GM: Biotransformations by Clostridium beijerinckii NCIMB 8052 in pH-auxostat culture 553

Grøn S, Biedermann K, Emborg C: Production of proteinase A by Saccharomyces cerevisiae in a cell-recycling fermentation system: experiments and computer simulations 724

Guan X. Wurtele ES: Reduction of growth and acetyl-CoA carboxylase activity by expression of a chimeric streptavidin gene in Escherichia coli 753

Guillouet S, Engasser JM: Growth of Corynebacterium glutamicum in glucose-limited continuous cultures under high osmotic pressure. Influence of growth rate on the intracellular accumulation of proline, glutamate and trehalose 496

Gyamerah M: Oxygen requirement and energy relations of itaconic acid fermentation by Aspergillus terreus NRRL 1960

Gyamerah M: Factors affecting the growth form of Aspergillus terreus NRRL 1960 in relation to itaconic acid fermentation 356

Haraguchi K, Kodama T: Purification and properties of poly(β-D-mannuronate) lyase from *Azetobacter chroococcum* 576

Haverkamp GK, Ranke H, Friedrich CG: Kinetic parameters for hydrogen evolution by the NAD-linked hydrogenase of *Alcali*genes eutrophus 514

Henneken L, Nörtemann B, Hempel DC: Influence of physiological conditions on EDTA degradation 190

Hölker U, Fakoussa RM, Höfer M: Growth substrates control the ability of Fusarium oxysporum to solubilize low-rank coal 351

Hudson JA, MacKenzie CAM, Joblin KN: Conversion of oleic acid to 10-hydroxystearic acid by two species of ruminal bacteria 1

Jachmanián I, Schulte E, Mukherjee KD: Substrate selectivity in esterification of less common fatty acids catalysed by lipases from different sources 563

Jacobs MF, Tynkkynen S, Sibakov M: Highly bioluminescent Streptococcus thermophilus strain for the detection of dairyrelevant antibiotics in milk 405

Juteau P, Beaudet R, McSween G, Lépine F, Milot S, Bisaillon J-G: Anaerobic biodegradation of pentachlorphenol by a methanogenic consortium 218

Kästner M, Mahro B: Microbial degradation of polycyclic aromatic hydrocarbons in soils affected by the organic matrix of compost 668

Kanai T, Atomi H, Umemura K, Ueno H, Teranishi Y, Ueda M, Tanaka A: A novel heterologous gene expression system in Saccharomyces cerevisiae using the isocitrate lyase gene promoter from Candida tropicalis 759

Kataoka M, Shimizu K, Sakamoto K, Yamada H, Shimizu S: Lactonohydrolase-catalyzed optical resolution of pantoyl lactone: selection of a potent enzyme producer and optimization of culture and reaction conditions for practical resolution 333

Kawai F: Bacterial degradation of glycol ethers 532

Kenealy WR, Cao Y, Weimer PJ: Production of caproic acid by cocultures of ruminal cellulolytic bacteria and Clostridium kluyveri grown on cellulose and ethanol 507

Kennes C, Wu W-M, Bhatnagar L, Zeikus JG: Anaerobic dechlorination and mineralization of pentachlorophenol and 2,4,6trichlorophenol by methanogenic pentachlorophenol-degrading granules 801

Kimura H, Izawa M, Sumino Y: Molecular analysis of the gene cluster involved in cephalosporin biosynthesis from *Lysobacter lactamgenus* YK90 589

Kittelmann M, Klein T, Kragl U, Wandrey C, Ghisalba O: CMP-N-acetyl neuraminic-acid synthetase from Escherichia coli: fermentative production and application for the preparative synthesis of CMP-neuraminic acid 59

Klich MA, Yu J, Chang P-K, Mullaney EJ, Bhatnagar D, Cleveland TE: Hybridization of genes involved in aflatoxin biosynthesis to DNA of aflatoxigenic and non-aflatoxigenic aspergil-

Knippschild M, Rehm H-J: Degradation of 2-chloroethanol by free and immobilized *Pseudomonas putida* US 2 253

Kruus K, Andreacchi A, Wang WK, David Wu JH: Product inhibition of the recombinant CelS, an exoglucanase component of the Clostridium thermocellum cellulosome 399

Kunioka M: Biosynthesis of poly (γ-glutamic acid) from L-glutamine, citric acid and ammonium sulfate in Bacillus subtilis IFO3335 501

Lang C, Looman AC: Efficient expression and secretion of Aspergillus niger RH5344 polygalacturonase in Saccharomyces cerevisiae 147

Latzko F, Hampel W: Enzyme formation by a yeast cell wall lytic Arthrobacter species: chitinolytic activity 185 Laugero C, Sigoillot J-C, Moukha S, Frasse P, Bellon-Fontaine MN, Bonnarme P, Mougin C, Asther M: Selective hyperproduction of manganese peroxidases by *Phanerochaete chryso*sporium I-1512 immobilized on nylon net in a bubble-column reactor 717

Lee BR, Kitamoto K, Yamada O, Kumagai C: Cloning, characterization and overproduction of nuclease S1 gene (nucS) from Aspergillus oryzae 425

Lee FWF, Da Silva NA: Application of Ty1 for cloned gene insertion: amplification of a large regulated expression cassette in Saccharomyces cerevisiae 620

Leenhouts KJ, Bolhuis A, Ledeboer A, Venema G, Kok J: Procution of secreted guar α-galactosidase by *Lactococcus lactis* 75

Liu S-C, Webster DA, Stark BC: Cloning and expression of the Vitreoscilla hemoglobin gene in pseudomonads: effects on cell growth 419

Loffhagen N, Härtig C, Babel W: Fatty acid patterns of Acinetobacter calcoaceticus 69-V indicate sensitivity against xenobiotics 526

Luu PP, Yung CW, Sun AK, Wood TK: Monitoring trichloroethylene mineralization by *Pseudomonas cepacia* G4 PR1 259

Madyastha KM, Joseph T: Transformation of dehydroepiandrosterone and pregnenolone by *Mucor piriformis* 339

Malmberg L-H, Hu W-S, Sherman DH: Effects of enhanced lysine ε-aminotransferase activity on cephamycin biosynthesis in Streptomyces clavuligerus 198

Marco JL, Bataus LA, Valência FF, Ulhoa CJ, Astolfi-Filho S, Felix CR: Purification of characterization of a truncated Bacillus subtilis α-amylase produced by Escherichia coli 746

Marin M, Pedregosa A, Laborda F: Emulsifier production and microscopical study of emulsion and biofilms formed by the hydrocarbon-utilizing bacteria Acinetobacter calcoaceticus MM5 660

Mendoza-Vega O, Keppi E, Bouchon B, Nguyen M, Achstetter T: Recombinant outer-surface protein A (des-Cys¹-OspA) from the Lyme disease spirochete Borrelia burgdorferi: high production levels in Saccharomyces cerevisiae yeast cultures 624

Mester T, Peña M, Field JA: Nutrient regulation of extracellular peroxidases in the white rot fungus, *Bjerkandera* sp. strain BOS55 778

Morales P, Sendra JM, Pérez-González JA: Purification and Characterization of an arabinofuranosidase from *Bacillus polymyxa* expressed in *Bacillus subtilis* 112

Morikawa Y, Ohashi T, Mantani O, Okada H: Cellulase induction by lactose in *Trichoderma reesei* PC-3-7 106

Mukherjee KD, Kiewitt I: Enrichment of very-long-chain monounsaturated fatty acids by lipase-catalysed hydrolysis and transesterification 557

Murakami Y, Yokoigawa K, Kawai H: Lipid composition of a freeze-tolerant yeast, Torulaspora delbrueckii, and its freezesensitive mutant 167

Nagasaka Y, Muraki N, Kimura A, Suto M, Yokota A, Tomita F: Cloning of Corticium rolfsii glucoamylase cDNA and its expression in Saccharomyces cerevisiae 451

Nagata S, Bakthavatsalam S, Galkin AG, Asada H, Sakai S, Esaki N, Soda K, Ohshima T, Nagasaki S, Misono H: Gene cloning, purification, and characterization of thermostable and halophilic leucine dehydrogenase from a halophilic thermophile, *Bacillus licheniformis* TSN9 432

Nielsen PH, Frølund B, Keiding K: Changes in the composition of extracellular polymeric substances in activated sludge during anaerobic storage 823

Niven GW, Holder SA, Strøman P: A study of the substrate specificity of aminopeptide N from *Lactococcus lactis* subsp. cremoris Wg2 100

O'Brien DJ, Craig Jr JC: Ethanol production in a continuous fermentation/membrane pervaporation system 699 Oh K-B, Matsuoka H, Jing W, Yamamoto A, Kurata H: Transmission of the effect of an antifungal agent within a single hypha 473

Ohshiro T, Hirata T, Izumi Y: Microbial desulfurization of dibenzothiophene in the presence of hydrocarbon 249

O'Kennedy R, Houghton CJ, Patching JW: Effect of growth environment on recombinant plasmid stability in *Saccharomyces* cerevisiae grown in continuous culture 126

Ozadali F, Glatz BA, Glatz CE: Fed-batch fermentation with and without on-line extraction for propionic and acetic acid production by *Propionibacterium acidipropionici* 710

Peng M, Cooper Jr CR, Szaniszio PJ: Genetic transformation of the pathogenic fungus Wangiella dermatitidis 444

Perraud R, Laboret F: Optimization of methyl propionate production catalysed by *Mucor miehei* lipase 321

Radwan SS, Sorkhoh NA, Fardoun F, Al-Hasan RH: Soil management enhancing hydrocarbon biodegradation in the polluted Kuwaiti desert 265

Rehms H, Barz W: Degradation of stachyose, raffinose, melibiose and sucrose by different teme-producing *Rhizopus* fungi 47

Requena T, Yu W, Stoddard GW, McKay LL: Lactococcin A overexpression in a *Lactococcus lactis* subsp. *lactis* transformant containing an Tn5 insertion in the *lcnD* gene 413

Rhee S-K, Lee GM, Lee S-T: Influence of a supplementary carbon source on biodegradation of pyridine by freely suspended and immobilized *Pimelobacter* sp. 816
Rolin DB, Girard F, Certaines de JD, Boyaval P: <sup>13</sup>C-NMR study

Rolin DB, Girard F, Certaines de JD, Boyaval P: <sup>13</sup>C-NMR study of lactate metabolism in *Propionibacterium freudenreichii* subsp. shermanii 210

Rosell CM, Vaidya AM: Twin-core packed-bed reactors for organic-phase enzymatic esterification with water activity control 283

Russo A, Moënne-Loccoz Y, Fedi S, Higgins P, Fenton A, Dowling DN, O'Regan M, O'Gara F: Improved delivery of biocontrol *Pseudomonas* and their antifungal metabolites using alginate polymers 740

Schindler I, Friedl A: Degradation of toluene/heptane mixtures in a trickling-bed bioreactor 230

Schwartz H, Liebig-Weber A, Hochstätter H, Böttcher H: Microbial oxidation of ebastine 731

Seewöster T, Lehmann J: Influence of trageted asparagine starvation on extra- and intracellular amino acid pools of cultivated Chinese hamster ovary cells 344

Shin HS, Rogers PL: Biotransformation of benzaldehyde to L-phenylacetylcarbinol, an intermediate in L-ephedrine production, by immobilized *Candida utilis* 7

Shoeb SM, Kaneoke M, Shimizu E, Yorifuji T: Diguanidinobutanase of *Pseudomonas putida* and enzymatic preparation of agmatine from 1,4-diguanidinobutane 94

Skjerdal OT, Sletta H, Flenstad SG, Josefsen KD, Levine DW, Ellingsen TE: Changes in intracellular composition in response to hyperosmotic stress of NaCl, sucrose or glutamic acid in Brevibacterium lactofermentum and Corynebacterium glutamicum 635

Soeder CJ, Papaderos A, Kleespies M, Kneifel H, Haegel F-H, Webb L: Influence of phytogenic surfactants (quillaya saponin and soya lecithin) on bio-elimination of phenanthrene and fluoranthene by three bacteria 654

Sonezaki S, Okita K, Oba T, Ishii Y, Kondo A, Kato Y: Protein substrates and heat shock reduce the DNA-binding ability of Escherichia coli Lon protease (Short contribution) 484

Sonntag K, Schwinde J, Graaf AA de, Marx A, Eikmanns BJ, Wiechert W, Sahm H: <sup>13</sup>C NMR studies of the fluxes in the central metabolism of *Corynebacterium glutamicum* during growth and overproduction of amino acids in batch cultures 489

Spencer DM, Spencer JFT, de Figueroa LI, Garro O, Fengler E: Yeasts associated with pods and exudates of algarrobo trees (*Prosopis* spp.) and species of columnar cacti in northwest Argentina 736

Stelkes-Ritter U, Wyzgol K, Kula M-R: Purification and characterization of a newly screened microbial peptide amidase 393

Su WW, Lei F, Kao NP: High density cultivation of Anchusa officinalis in a stirred-tank bioreactor with in situ filtration 293

Takeda M, Matsuoka H, Ban H, Ohashi Y, Hikuma M, Koizumi J-i: Biosynthesis of poly(3-hydroxybutyrate-Co-3-hydroxyvalerate) by a mutant of Sphaerotilus natans 37

Takii Y, Takahashi K, Yamamoto K, Sogabe Y, Suzuki Y: Bacillus stearothermophilus ATCC12016 α-glucosidase specific for α-1,4 bonds of maltosaccharides and α-glucans shows high amino acid sequence similarities to seven α-D-glucohydrolases with different substrate specificity (Short contribution) 629

Tokuyama S, Hatano K: Overexpression of the gene for N-acy-lamino acid racemase from Amycolatopsis sp. TS-1-60 in Escherichia coli and continuous production of optically active methionine by a bioreactor (Short contribution) 774

Tom RL, Debanne MT, Bédard C, Caron AW, Massie B, Kamen AA: Improved yields of the extracellular domain of the epidermal growth factor receptor produced using the baculovirus expression system by medium replacement following infection 53

Torres NV, Riol-Cimas JM, Wolschek M, Kubicek CP: Glucose transport by *Aspergillus niger*: the low-affinity carrier is only formed during growth on high glucose concentrations 790

Turick CE, Apel WA, Carmiol NS: Isolation of hexavalent chromium-reducing anaerobes from hexavalent-chromiumcontamined and noncontamined environments 683

Vassilev N, Baca MT, Vassileva M, Franco I, Azcon R: Rock phosphate solubilization by Aspergillus niger grown on sugarbeet waste medium 546

Wal FJ van der, Hagen-Jongman CM ten, Oudega B, Luirink J: Optimization of bacteriocin-release-protein-induced protein release by Escherichia coli: extracellular production of the periplasmic molecular chaperone FaeE 459

Watanabe Y, Hall DO: Photosynthetic production of the filamentous cyanobacterium Spirulina platensis in a cone-shaped helical tubular photobioreactor 693

Weydemann U, Keup P, Piontek M, Strasser AWM, Schweden J, Gellissen G, Janowicz ZA: High-level secretion of hirudin by Hansenula polymorpha – authentic processing of three different preprohirudins 377

Wittmann C, Zeng A-P, Deckwer W-D: Growth inhibition by ammonia and use of a pH-controlled feeding strategy for the effective cultivation of *Mycobacterium chlorophenolicum* 510

Wood TM, Wilson CA, McCrae SI: The cellulase system of the anaerobic rumen fungus *Neocallimastix frontalis*: studies on the properties of fractions rich in endo- $(1\rightarrow 4)$ - $\beta$ -D-glucanase activity 177

Xu P, Qian XM, Wang YX, Xu YB: Modelling for waste water treatment by *Rhodopseudomonas palustris* Y6 immobilized on fibre in a columnar bioreactor 676

Yabuta M, Ochi N, Ohsuye K: Hyperproduction of a recombinant fusion protein of *Staphylococcus aureus* V8 protease in *Escherichia coli* and its processing by OmpT protease to release an active V8 protease derivative 118

Yoshida K, Kasai T, Garcia MRC, Sawada S, Shoji T, Shimizu S, Yamazaki K, Komeda Y, Shinmyo A: Heat-inducible expression system for a foreign gene in cultured tobacco cells using the HSP18.2 promoter of Arabidopsis thaliana 466

Yüksel GÜ, Steele JL: DNA sequence analysis, expression, distribution, and physiological role of the Xaa-prolyldipeptidyl aminopeptidase gene from *Lactobacillus helveticus* CNRZ32

Yu S, Jeppsson H, Hahn-Hägerdal B: Xylulose fermentation by Saccharomyces cerevisiae and xylose-fermenting yeast strains 314

- Zayed G, Winter J: Batch and continuous production of lactic acid from salt whey using free and immobilized cultures of lactobacilli 362
- Zhang J, Marcin C, Shifflet MA, Salmon P, Brix T, Greasham R,
   Buckland B, Chartrain M: Development of a defined medium fermentation process for physostigmine production by Streptomyces griseofuscus 568
   Zhon N-Y, Chan Kwo Chion CK, Leak DJ: Cloning and expres-
- Zhon N-Y, Chan Kwo Chion CK, Leak DJ: Cloning and expression of the genes encoding the propene monooxygenase from Xanthobacter, Py2 582
- Zhu Y, Rinzema A, Tramper J, Bol J: Microbial transglutaminase – a review of its production and application in food processing 277
- essing 277

  Zupke C, Sinskey AJ, Stephanopoulos G: Intracellular flux analysis applied to the effect of dissolved oxygen on hybridomas 27

